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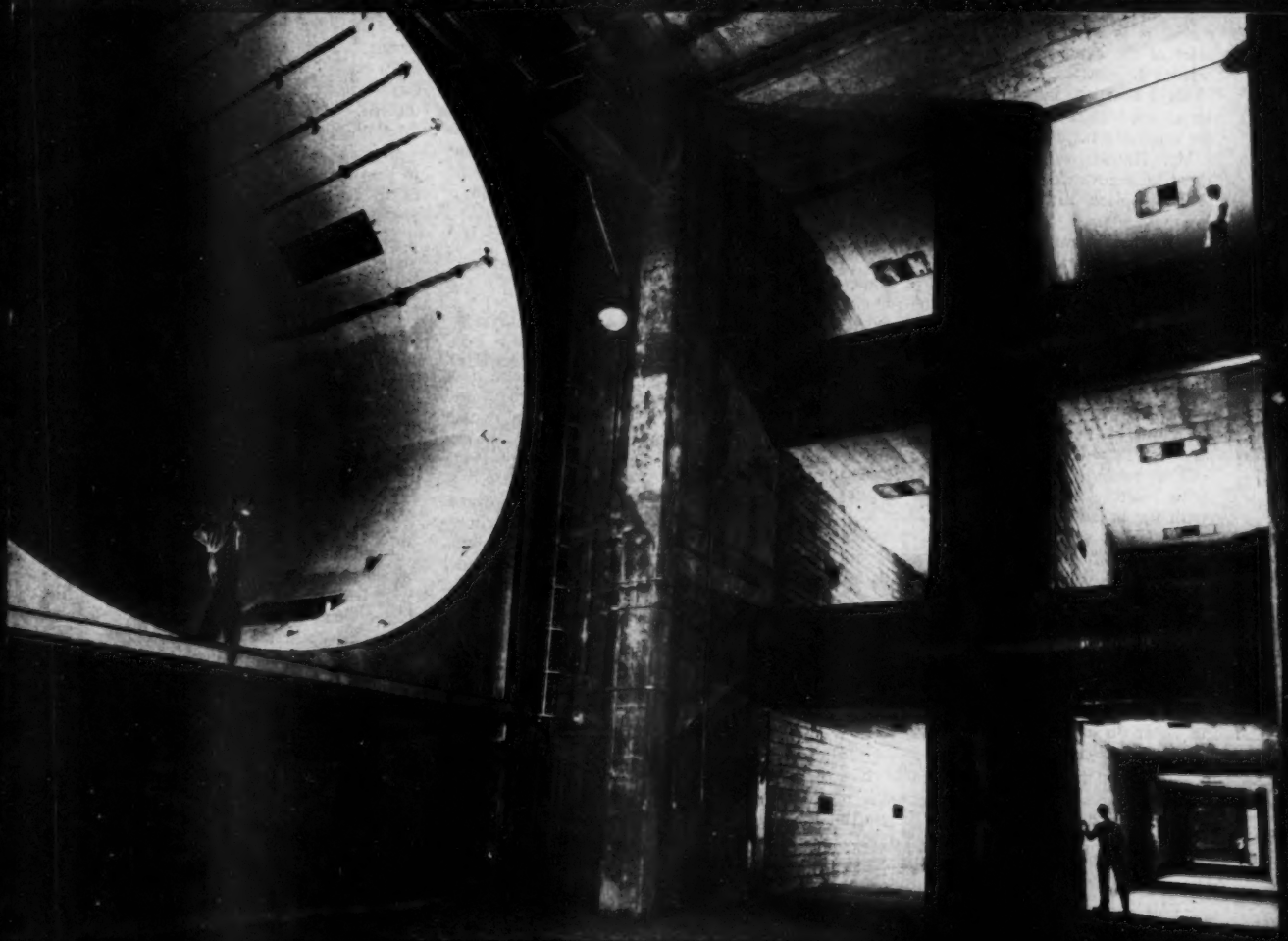
January 27, 1951

SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



A SCIENCE SERVICE PUBLICATION

METEOROLOGY

Weather Month Ahead

In future, month-ahead predictions can be made to apply to any particular day and any particular place. Local characteristics affect local weather.

➤ IN THE FUTURE, weather forecasters will be able to pinpoint their month-ahead predictions to apply to any particular day and any particular place.

Research now going on in several regions on the American continent and in Hawaii point the way to this ultimate goal of the U. S. Weather Bureau, Jerome Namias, chief of the extended forecast section, told Science Service.

Right now, the bureau is able to forecast for a month ahead only the average weather for relatively large areas of the country.

Mr. Namias refused to predict when these new advances in weather forecasting will take place, but he is sure they are coming.

The steps forward in weather forecasting will probably come in this order:

1. A decrease in the size and a consequent increase in the number of regions for which 30-day forecasts can be made.

2. Being able to predict for the future month what will happen, first during specific weeks and then during specific days.

3. Finally, extending the 30-day period to a quarter of a year and even so much as a year in advance.

The studies in Hawaii are concerned with relating local weather characteristics with the broad sweep of the weather as it travels from west to east. Great variations in the weather over small distances are found in Hawaii. Therefore the islands are a good laboratory for this research.

"This interrelationship is the important thing," Mr. Namias explained. "You have to know not only what is happening 30,000 feet up over Siberia, Alaska and Greenland, but also what mountains and bodies of water do to the weather when it gets to a particular city."

As an example, Mr. Namias told how his forecasters once predicted a month of colder than normal weather for the northern plains states. This was based on the prediction that cold north winds would be coming down out of the Arctic.

This happened, and the northern plains states averaged colder than normal as predicted. But not so Duluth, Minn., where it was actually warmer than normal. The cause? A local characteristic. Duluth is colder than normal when a wind from the east sweeps in from cold Lake Superior. A north wind warms up Duluth at certain times of the year.

There are two limitations under which the meteorologists have to work, Mr. Namias explained. First, there exists only a short history of data on the movement of weather in the upper atmosphere—the region which determines what kind of weather we are going to have. Second, if the weathermen had all the data, there is still not a complete enough understanding of the fundamental whys of the weather.

Once the research on local weather characteristics and their relationship to the general flow of the weather is done, Mr. Namias explained, the weathermen will probably have to call in the big electronic brains to do their computing for them. So many temperature readings and wind strength figures will have to go into their figuring that man alone could not do it fast enough.

Science News Letter, January 27, 1951

GENERAL SCIENCE

Special Registration Of Scientists Likely

➤ REGISTRATION of thousands of skilled workers, scientists, technicians and engineers and their control by an overall government manpower agency was foreseen as a result of the announcement of President Truman's new manpower policy.

The President's memorandum to government agencies on this new policy shows great concern for the best possible utilization of men with critical skills, scientific and otherwise, and with their proper distribution between the military and the civilian economy.

Such utilization will require information about the number and quality of physicists, machine tool workers, etc., in the nation and this information can most efficiently be secured through registration.

The government's Scientific Manpower Advisory Committee is expected shortly to recommend that the government have authority to require registration of all scientists, technicians and engineers. A high administration manpower official told Science Service that the members of this committee saw President Truman's new manpower policy memorandum and that their report on how to use scientific manpower will be consistent with the new policy.

Distribution of men with critical skills, emphasized in the new policy, implies a new agency to control manpower. Whether this agency will be created is up to Mobilization Director Charles E. Wilson. It is believed by other government officials that need for such an agency would become apparent when the Defense Department and industry began fighting over scarce skills.

Such an agency would take the power to draft men with critical skills; including scientists, away from Selective Service. Under the new manpower policy, it would have the power to draft skilled individuals to fill individual jobs in the military. Under Selective Service, the military must find such men in the general quotas as they are called up.

Science News Letter, January 27, 1951

ENTOMOLOGY

Citrus Fruit Pest Is a Hitch-Hiker

➤ THE DESTRUCTIVE citrus fruit pest, citrus blackfly, has been tracked down by circumstantial evidence as a hitch-hiker. It hides on fruit and leaves that may then be carried north from Mexico by unsuspecting tourists, thus opening up new areas of infestation.

The U. S. and Mexico are cooperating to prevent any possible spread of this pest north of the border. Near-border regions are particular danger spots.

The pest has not yet been found in the U. S., but if it should sneak across the border, entomologists of the Department of Agriculture are learning how to stamp it out. A spray containing oil and rotenone, a plant derived insecticide, is most effective, they have found.

Attacking both leaves and fruit, the pest secretes "honey-dew," a sticky sweet material that oozes off on still healthy parts. This causes a black fungus that discolors and damages the fruit. In severely infected orchards, the harvest is cut to practically zero by the pest.

N. O. Berry of the Department of Agriculture, in reporting on a recent survey, states that nearly all of the infestations found have been in the vicinity of bus stations, filling stations, tourist courts, fruit stands and restaurants where people and vehicles break the journey from the interior.

Science News Letter, January 27, 1951

PLANT PATHOLOGY

Grasshoppers Spread Disease Among Plants

➤ GRASSHOPPERS have been convicted experimentally of being able to transmit from plant to plant three virus diseases that afflict tobacco and potatoes.

Dr. H. J. Walters, University of Nebraska plant pathologist, reports (SCIENCE, Jan. 12) that he fed one kind of grasshopper, called the differential grasshopper, upon plants infected with the diseases which were then carried to healthy plants.

The virus diseases are the tobacco mosaic, potato virus X (or latent potato virus) and tobacco ringspot virus. Whether the grasshoppers actually spread the diseases in growing fields is still to be determined.

Science News Letter, January 27, 1951

MEDICINE

ACTH Conquers Child Ill

Hormone chemical, famous for good effects in arthritis and rheumatic fever now has stopped symptoms of acute rheumatic heart disease in eleven patients.

➤ CONQUEST of the greatest disease killer of children and young people, rheumatic heart disease, is now likely, thanks to ACTH.

This hormone chemical, famous for its good effects in arthritis and rheumatic fever, stopped the symptoms and signs of progressive acute rheumatic heart disease in every one of 11 consecutive patients, two New York physicians report. (JOURNAL, AMERIQAN MEDICAL ASSOCIATION, Jan. 20.)

The good results were obtained within three to seven days. The patients were able to be up and out of bed and walking about within two to four weeks. In five of the patients there was no further sign of increased heart damage when the patients were examined four to 12 months after treatment. In six patients treated during what was presumed to be their first attack, there was no sign of heart damage in two and doubtful sign of it in three at the examination four to 12 months after treatment.

The fact that these patients were treated early in the attack of acute heart trouble is considered significant. Heretofore the effects of ACTH in rheumatic fever have been observed in patients who had been sick for several weeks before ACTH treatment was started. The effects of the hormone chemical in stopping the heart damage therefore could not be determined too well.

Early treatment of acute rheumatic heart disease with adequate amounts of ACTH should, the doctors state, shorten the course of the disease, reduce heart damage to a minimum and prevent death due to progressive heart damage.

The two doctors reporting these results are Drs. May G. Wilson and Helen N. Helper of the New York Hospital and Cornell University Medical Center.

Science News Letter, January 27, 1951

MEDICINE

Vitamin C Relieves Prickly Heat

➤ HERE'S a tip for those lucky enough to get a winter vacation in a warm climate and for the rest of us next summer: Prickly heat in babies and grown-ups can be relieved by large daily doses of synthetic vitamin C.

Given to troops on South Pacific islands during World War II, the synthetic vitamin brought relief from prickly heat in half an hour. The relief lasted six to 24 hours, Dr. Robert L. Stern of Beverly Hills, Calif., reports (JOURNAL, AMERICAN MEDICAL ASSOCIATION, Jan. 20).

Similar good results were obtained last summer in Coachella, Calif., a community bordering on the desert, in tests by Drs. Ralph E. Pawley and Charles A. Berry of that town.

Science News Letter, January 27, 1951

ENTOMOLOGY

Return to Flyswatter Is Now Foreseen

➤ A RETURN to the flyswatter will be our fate, for flies may become resistant to all sprays.

This was foreseen by Dr. R. I. Metcalf after he found that flies retained their DDT-resistance even though 30 generations had been bred without being exposed to the insecticide.

He tested the resistance of both flies and mosquitoes to DDT and other sprays. He also tested the ability of other pests to withstand heavy doses of chemicals deadly to them. Many kinds of insects develop resistance, Dr. Metcalf told the Hawaiian Academy of Sciences.

In most spraying operations, some strong flies get away before they get a killing dose. These are the ones that produce the resistant offspring, he concluded.

Science News Letter, January 27, 1951

ENGINEERING

Light-Weight Switcher Moves Railroad Cars

➤ A THREE-TON switcher recently tested moves railroad cars about in the freight yard as easily as the big locomotive switchers now used. Also it can cross sidewise from one track to another, saving the time consumed by standard switchers in running back to a switch to make a cross-over.

The new railroad yard tractor was developed by the Whiting Corporation in Harvey, Ill., and has been dubbed the trackmobile. It has four standard railway wheels for traveling on the track and four rubber-tired wheels by which it runs crosswise from track to track or anywhere on the ground. These rubber-tired wheels are retracted by hydraulic power when not in use.

The secret of its ability to handle a heavily loaded freight car is a device by means of which it carries part of the weight of the car, thus acquiring more traction on the rails. The trackmobile couples to any standard railway car.

When coupled, a hydraulic jack in the trackmobile raises a special coupler, thus forcing the tractor down on the track. When a portion of the car's weight is thus transferred to the trackmobile, it has a draw-bar pull up to a maximum of 7,350 pounds.

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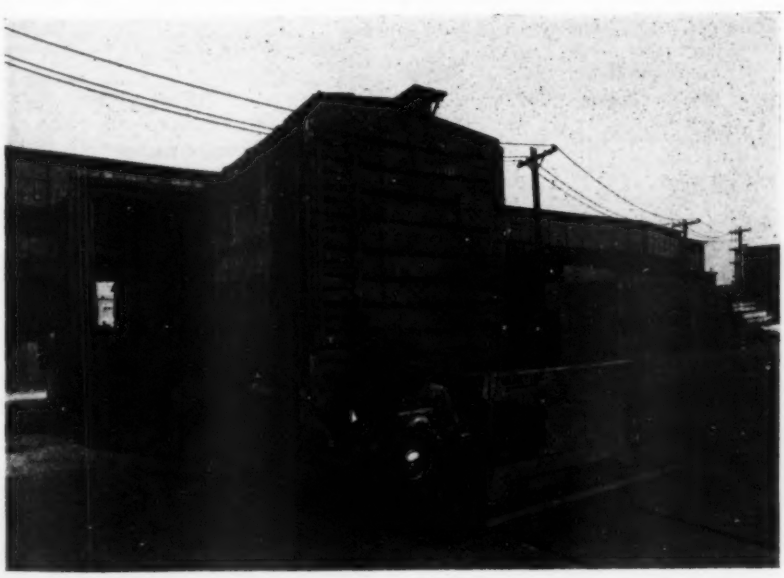

TRACKMOBILE SWITCHER—Although it weighs only 6,000 pounds, this convenient little switcher is powerful enough to pull fully loaded box cars.

ASTRONOMY

New Moon Origin Theory

Unstable earth, thousands of years ago, shook off the material from which the moon was to be created. Moon still moving away from earth.

➤ THE MOON was shaken off an unstable young earth thousands of years ago, according to the latest report of the origin of the moon.

This new moon origin theory comes from K. E. Bullen, mathematician of the University of Sydney.

A liquid, cooling earth with an additional high-density region where great pressure was concentrated inside its central core is visualized as the additional mechanism needed to push the moon away from the earth.

In an attempt to solve the age-old mystery of where the moon comes from, Mr. Bullen goes back to the general "fission" theory developed by Sir George Darwin, but pretty much ignored by astronomers and geologists for the past two decades.

Further investigation of the earth's interior and additional mathematical computations are necessary before this new theory can be put on a precise quantitative footing, Mr. Bullen admits. But then more information is needed before astronomers and geologists will unreservedly accept any theory as to how the moon came to be.

The moon is known to move about five feet farther away from the earth each century. Now over 200,000 miles away, in earlier years it was much nearer the planet on which we live. Some believe that the Pacific Ocean covers the scar where the moon was torn away from the earth between one and ten billion years ago.

This additional high-density region, no longer present in the earth, was caused chiefly by pressure rather than by change of material from ultrabasic rock to nickel-iron, Mr. Bullen reported (NATURE, Jan. 6). This region was just the right size to keep the primitive earth near the state of instability.

Tidal forces raised by the sun would then be only partly responsible for the disruption that led to the birth of the moon. But they would be the trigger effect that brought the young earth, bulging around its equator because of the great pull of the sun, to the point of instability.

Then forces pent up in the high-density region of the earth would have completed the task of casting away from the earth the material from which the moon was to be created. The two forces working together would be powerful enough to send the moon-matter spiraling out into space.

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MEDICINE

Test Tells Whether Swelling Is Mumps

➤ WHETHER the child with a swollen face has mumps or whether the swelling is due to some other cause can be told by a urine test for the starch-converting ferment, diastase.

Successful use of this test in 30 mumps patients and 10 patients with swollen faces due to other causes is reported by Dr. Martin M. Nothman of Tufts College Medical School, the Joseph H. Pratt Diagnostic Hospital and Boston Dispensary (NEW ENGLAND JOURNAL OF MEDICINE, Jan. 4).

In mumps the excretion of diastase in the urine is increased. In other swollen-face conditions it is not. If mumps starts on one side, the diastase excretion goes down as the swollen gland goes down, and increases again if the other side of the face is affected. The parotid glands, which are the ones involved in mumps, are believed to be the source of the extra diastase.

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PSYCHIATRY

Mental First Aid

Trailers equipped for emergency treatment of psychological casualties and mobile laundries to provide glass-free clothing are urged to prevent panic in atomic attack.

➤ TRAILER first-aid stations for emergency treatment of mental casualties and mobile laundries to provide clean clothing and blankets were urged by Dr. Kurt Fantl, psychiatrist of Los Angeles, as means of preventing panic in case of atom bomb attack. (AMERICAN JOURNAL OF PSYCHIATRY, January)

These first-aid trailers should be equipped to provide restraint for acute cases as well as quick sedation to quiet over-strained nerves, Dr. Fantl said.

We do not know what to expect in the way of panic among Americans in case of atomic bombing, he explained. In England, under wartime bombing, panic was much less of a problem than was anticipated.

But in Japan also there was no panic until the atom bomb was used. The Japanese, like the English, got used to bombing. They would not even seek shelter but would go about their work as usual—until the atom bomb dropped. After that, any light or spark suggesting the light flash of the explosion, or any noise even resembling that of an airplane would send them bolting for shelter. It got so that they didn't sleep, didn't eat, and were unable to work.

Panic may be prevented before disaster strikes by providing adequate shelters and lighting them with flashlights, and by education. The education should be provided carefully so that it will not create the panic it is intended to prevent. Informing the public of dangers without a master plan to help each individual to find an active place in the defense may actually create panic, Dr. Fantl pointed out.

After disaster strikes, panic prevention involves first of all a known reliable information source. Sound trucks or small planes equipped with loud speakers might be utilized for this purpose. In addition to instant treatment of psychological breakdowns, Dr. Fantl urges the following means for strengthening morale in a bombed area.

1. Uniformed civilian defense members to appear on the scene as quickly as possible. Experience in England has shown that the mere presence of a person in authority was often enough to create confidence.

2. Mobile laundry units. After a bombing people's laundry is generally full of glass splinters and grime. In case of atomic bombing it might be contaminated with radioactive materials.

3. Mobile kitchens and hot food are a proven medicine against shakiness.

In case children are evacuated from target areas, it should be done with care, Dr. Fantl emphasized. During the last war, psychiatric disturbance was greater among evacuated children than among the bombed children, he said. Evacuation should be planned for in advance.

People who have relatives and friends in safe areas should take their children to visit there, he suggests. Parents should stay overnight with the children at first and then should get them used to spending the night away from home without their mothers so that in case evacuation should become necessary, separation from the parents and home would not be so terrifying.

For those children who have no relatives or friends in safe areas, the aid should be enlisted of those with camping and child care experience such as Boy Scout and Campfire leaders.

Care of the aged should also be planned in advance of disaster. One of the chief difficulties in handling old people is their reluctance to move and their slowness which interferes with rescue operations.

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ZOOLOGY

Rare Amphibians Have No Eyes or Legs

➤ RARE, eel-like amphibians without eyes and without legs, called Caecilians, are among the 1,400 specimens just received from Venezuela at the University of Illinois' Natural History Museum. They were collected last summer by two graduate students on an expedition into a little explored part of the South American nation.

The Caecilians look like foot-long earthworms, but actually are relatives of the frogs. They were caught with fish-hooks in the Orinoco river. They are rare in any collection because they burrow deep in the ground or swim below the surface of the water and seldom come up.

Also in the collection are fish-eating bats, which scoop up small fish in the folds of their tails, and sloths.

The two Americans—W. Leslie Burger, Frederick, Md., and Lowell S. Miller, Provo, Utah—travelled 3,000 miles by every means of transportation through Venezuela in their search for the mammals, reptiles and amphibians.

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PRECISION—A specialist in the new Measurements Laboratory of the General Electric Meter and Instrument Divisions at Lynn, Mass., adjusts a spring in a small panel instrument.

PHYSICS

Sun Best Power Source

Present annual consumption of all forms of energy only equal to that from the sun in three minutes. End of shovel and ashpit era foreseen.

➤ THE PRESENT rate of consumption of all forms of energy in the world in an entire year is equal to the energy received from the sun in only three minutes.

Why not harness that free energy? Why not let the sun help us conserve our supplies of coal, oil and nuclear fuels?

Those are the questions asked by Dr. George O. G. Löf, director of the Institute of Industrial Research of the University of Denver and one of the nation's authorities on solar energy.

"Suppose all the world's coal, oil and wood were burned at a rate liberating heat equal to that received from the sun," the Colorado scientist observed, "in a little over three days those fuels would be completely exhausted.

"Less than an hour of the same rate of conflagration would exhaust the known nuclear fuels.

"Man has had his stone age, his iron age and his machine age—this is the energy age, so why not harness the only really inexhaustible power supply left to man?" he asks.

Dr. Löf has already demonstrated that the sun's rays can economically heat and cool a home. He explains that the ready availability of other fuels and technical and economic problems have delayed utilization of solar energy. But he predicts that within the next decade or so electricity will be generated from the sun's power.

He also forecast an end to the coal shovel and ashpit for home owners who will be using solar energy for temperature control of their houses. This will happen when technical problems are solved on a mass scale and when the costs of other fuels reach a balance with the cost of installing the sun collectors.

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PHYSICS

Cosmic Ray Origin in Sun

Rays which shower the earth, forming many kinds of particles by smashing into atoms, now believed not to come from outer space.

➤ EVIDENCE that cosmic rays, ceaselessly bombarding the earth from outer space with tremendous energies, come from the sun has been put forth.

From studies of the abundance of light elements in cosmic rays, Dr. Bernard Peters and the late Dr. H. L. Bradt, while at the University of Rochester, New York, concluded that the rays probably do not come from outside our own solar system.

Primary cosmic rays, beating down on the earth's atmosphere, smash into atoms high in the upper air, forming in these collisions many different kinds of particles, protons, mesons and neutrons. Their energies are many times greater than those available in man-made accelerators. By studying these mysterious rays and the atomic havoc they cause, scientists expect to learn how and why the atom is held together.

The scientists state that the absence or scarcity of lithium, beryllium and boron in primary cosmic rays indicates that the chemical composition at their source is similar to the average for the universe. On this basis they argue in favor of solar origin, or, at least, in favor of a source region close enough to the earth to reflect the chemical abundance ratio at cosmic ray origin without need for an accelerating mechanism between the source and earth.

In doing so, they disagree with two current theories on the origin of cosmic rays.

Dr. Enrico Fermi of the University of Chicago has proposed that cosmic ray particles come from within our galaxy and that they attain their great speed by collisions within this galaxy with moving magnetic fields varying in degree.

Dr. Lyman Spitzer, Jr., Director of Princeton University Observatory, has assumed that cosmic ray particles were accelerated as dust grains by radiation pressure in the vicinity of supernova, giant exploding stars that flare up suddenly to many times their usual brilliance.

Since finishing these studies, just announced in the PHYSICAL REVIEW (Dec. 15), Dr. Bradt has died. Dr. Peters is now in India investigating further the origin and nature of cosmic rays.

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PHOTOGRAMMETRY

War Territory Photos Radioed from Planes

➤ VITAL battle time is saved by radioing back photographs taken of enemy territory to show battle positions and strength.

This has now been done for the first time under actual fighting conditions, Col. G. W. Goddard, Chief of the Photographic Laboratory at Wright Field, Ohio, reported to the American Society of Photogrammetry meeting in Washington.

The system used is much the same as that by which pictures for newspapers are flashed from one end of the country to the other. The photograph is scanned electrically as it revolves on a drum. These scanned signals are sent out as radio waves and when received are converted back to a picture.

Right now the system is effective for only about 100 miles but is expected to be usable for distances well over 200 miles between plane and ground when perfected. It is also hoped to increase the detail of the radioed photographs by increasing the number of electrically scanned lines from the present 150 to 500 per inch.

The pictures are taken and developed by the Land process, which gives a final print in less than a minute. This process will be standard within the near future for transmission work, Col. Goddard predicted.

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NUTRITION

Dehydrated Corn Flour Now Makes Tortillas

➤ A DRY CORN flour to which water can be added to give tortilla dough in a jiffy is now being sold in Mexico.

The process for making the dehydrated flour was perfected by American and Mexican scientists from the Mexican Institute of Technical Research and the Armour Research Foundation of the Illinois Institute of Technology.

Result of a three-year project, the flour can be used to make dough suitable for tortillas, atoles, tamales and other basic items of the Mexican diet much as similar products available in the U. S. make biscuit or cake dough.

At present Mexican housewives or small shops prepare the needed tortilla dough daily since it spoils in a few hours. The new dehydrated flour is prepared in huge plants with a production aim of over 200 tons of flour per day. Mexican dependence on the year-to-year corn crop will be eased by large storage facilities capable of holding 9,000 tons of corn for future use.

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An important use of *molasses* is to mix with grass in a silo to help preserve the grass and give a better livestock feed.

MEDICINE

Potassium Aids Paralysis

Young woman unable to walk because of spastic spinal paralysis, was able to run and jump after three days of treatment with potassium.

➤ TREATMENT with the chemical, potassium, has enabled a paralyzed patient to run and jump. The case, that of a 29-year-old mother of two children, is reported by Dr. Eric Barrett of Beverly Hills, Calif., (JOURNAL, AMERICAN MEDICAL ASSOCIATION, Jan. 20).

The young mother has spastic spinal paralysis. She is believed to be the first patient with this condition who was helped by the potassium treatment, though it has been used successfully in other types of paralysis and muscular weakness.

Her illness started about 11 years ago with clumsiness in the knee and stiff gait. Shoulder and arm weakness, swellings and pains came later. Last summer when Dr. Barrett first saw her she had a characteristic shuffling, spastic gait. She was hardly able to lift her feet from the floor and almost unable to walk alone.

Daily doses of potassium brought a dramatic response. On one occasion, she was able to run and jump three days after starting the treatment. Every time the potassium was stopped, the spastic symptoms returned.

Apparently this patient's condition was due to too little potassium in her body. Whether potassium deficiency plays a part in other similar cases and whether this is related to the adrenal and pituitary glands which control potassium utilization are questions raised by this case. Dr. Barrett is investigating the problem further.

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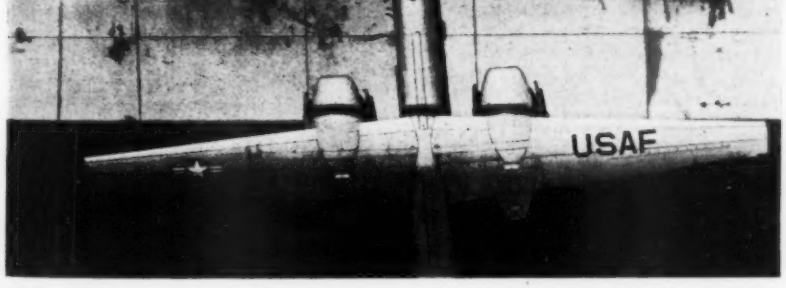
AERONAUTICS

Plan Aeronautics Center

Princeton will dedicate new research center to the late James Forrestal. Much of research will be sponsored by federal government.

➤ RESEARCH in aviation will be coordinated and greatly increased at Princeton University with the purchase of an 800-acre tract of land with its present laboratory buildings and the creation of the James Forrestal Center within the university.



HIGH SPEED PICTURE—Taken from a plane traveling 500 miles per hour at an altitude of 100 feet, this strip-camera picture shows a four-jet airplane on the ground in great clarity and detail. The strip camera photographs without a shutter, the film moving over a small opening with the same speed as the plane.

The university already has a department of aeronautical engineering and a project in its chemistry department devoted to combustion research. It also has the Daniel and Florence Guggenheim Jet Propulsion Center which shares with a similar center at the California Institute of Technology the distinction of being one of the two existing programs specifically designed for advanced training in this vital subject.

The property purchased was formerly occupied by the Rockefeller Institute for Medical Research. Work of this organization is now consolidated in New York. The new aeronautics center will be dedicated as a memorial to the late James Forrestal, graduate of the university and the nation's first Secretary of Defense.

Much of the research to be undertaken at this new center will be sponsored by the federal government. Programs already planned include helicopter research, flight control, supersonics and rocket development, chemical kinetics, metallurgy and other sciences. The center will bring together representatives of the university departments of aeronautical engineering, chemistry, chemical engineering, physics, mathematics and mechanical engineering.

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METALLURGY

Ductile Cast Iron Produced with Zirconium

➤ DUCTILE cast iron, which can replace steel in certain applications, is produced as an improved product by a new method employing zirconium on which a patent was awarded by the government recently.

Ordinary cast iron, the simplest iron product of pig iron, is easily cast in molds but can not be tempered, forged or rolled. Ductile cast iron, made by adding a small amount of another metal, is malleable to a degree and may be employed in some uses otherwise limited to steel. Older processes for making the ductile variety have limitations which the new process is said to overcome.

In this now patented process, a mechanical mixture of finely divided zirconium-bearing material and finely divided elemental magnesium is added to the molten cast iron. Amounts used leave a residual zirconium content of 0.5% or less, and a magnesium content of 0.2% or less.

Inventor is Charles M. Offenhauer, Lewiston, N. Y. Patent awarded is number 2,538,263. Rights are assigned to Union Carbide and Carbon Corporation, New York City.

Science News Letter, January 27, 1951

Although American railroads now make use of some 200,000 miles of telegraph and telephone lines, *radio* is rapidly coming into use, particularly to communicate with moving trains.

PHYSICS

Yale Gets Grant for Radiocarbon Dating

➤ A LABORATORY for radiocarbon dating archaeological and recent geological specimens is to be established at Yale University with a Rockefeller Foundation grant of $42,500.

The new Yale laboratory will establish a second center for making determinations of radiocarbon 14 activity in specimens of organic origin connected with the early history of man and the recent geological history of the earth and archaeological and prehistorical discoveries.

Science News Letter, January 27, 1951

PUBLIC HEALTH

'Flu Can Hop Ocean But Smallpox Is Stopped

➤ INFLUENZA reported epidemic in England may hop the ocean to spread in this country, though so far there are no signs that it has. But smallpox which has broken out in Brighton, England, is not likely to menace us.

This is because our quarantine regulations for the past several years have required everyone entering this country to have been vaccinated aginst smallpox within the previous two years. The regulation applies to United States citizens returning from a vacation or business trip as well as to foreigners.

Recently the regulation has been amended slightly. In place of vaccination the traveller may present a letter from the health officer of the port of departure stating the traveller has not been in an area where small pox is prevalent for the past 10 days. Successful vaccination protects the individual against smallpox and prevents its spread.

Science News Letter, January 27, 1951

GEOLOGY

Methane Deposit Found in New England

➤ FIRST DISCOVERY in New England of a deposit of methane gas, the chief component of ordinary cooking gas, in a pocket in a rock formation has been reported to have taken place in a 500-foot well dug north of Lewiston, Maine.

Heretofore the only methane gas found in New England, according to Drs. Lloyd W. Fisher and William H. Sawyer, Jr., of Bates College was in bogs and in stagnant ponds. There it is commonly generated with the decay of vegetation buried in bottom mud.

Only a small amount of the gas was found in the rock through which this well was dug, the professors reported. It seeped out about 250 feet down, causing the water drawn up from the well to give off a gaseous odor and to bubble.

The most plausible explanation for this rare find of methane gas, as given by Drs. Fisher and Sawyer, Jr. (SCIENCE, Jan. 5) is that it migrated along the contact plane between two local rock formations or along the bedding planes of phyllites from some nearby swamp areas, or entered the zone of the wellhole through fractures in the country rock.

Science News Letter, January 27, 1951

TECHNOLOGY

New Butyl Tire Tube Self-Seals Punctures

➤ A NEW tube for the automobile tire which seals itself instantly when punctured has been developed by Firestone Tire and Rubber Company. It is said to be the first "puncture-proof" tube made entirely of the synthetic rubber known as butyl.

The tube is made of three layers with two puncture sealing elements under the tread. The inner layer is a special soft butyl which will flow around a nail or similar sharp object to prevent loss of air. The intermediate layer is an especially compounded butyl that resists tearing or enlargement of puncture holes. The outer layer is a tough, heat-resisting butyl that provides superior air retention. Butyl is now quite generally used in tire tubes because it holds air better than natural rubber.

Science News Letter, January 27, 1951

AGRICULTURE

More Cotton and Corn Wait New Weedkillers

➤ NEW CHEMICAL poisons are being hunted which will kill off weeds in U. S. cotton, corn, soybean and alfalfa fields without harming cash crops.

The goal of scientists working on new ways to give Nature a helping hand, such herbicides will some day give a "tremendous boost" to some of America's largest farm crops, the American Association for the Advancement of Science was told recently.

Large-scale use of chemicals is already proven, standard practice for the elimination of weeds from certain crops, Dr. Lloyd V. Sherwood, research agronomist of the Monsanto Chemical Co., pointed out.

But so far, cotton, corn, soybeans, alfalfa and similar legumes, beets, potatoes, onions and miscellaneous other crops have barely been touched by the modern scientific wand of chemical weed control.

There has been some early success in attacking the problem, Dr. Sherwood said.

But new chemicals are needed, he added, as well as more knowledge of plant life and the mechanisms by which various chemicals work.

Science News Letter, January 27, 1951

IN SCIENCE

INVENTION

Champagne Made by Dropping Capsule in Water

➤ AN ALCOHOLIC beverage resembling champagne wine can be made at any time at any place with a glass of plain water and a capsule on which a citizen of France obtained an American patent recently.

The small capsule, easily carried in the pocket, has a casing principally of sugar and bicarbonate of soda. This casing dissolves quickly in water, releasing the contents of the capsule. Its filling is an alcoholate composed of an ethylic alcohol, a little tartaric or citric acid, an aromatic ester and a coloring material.

The sweetener used in the casing is insoluble in the alcohol used, and the same alcohol prevents the acid from reacting with the bicarbonate of soda until the casing is dissolved in the water when the contents mix with the liquid and gas is formed to give the sparkle.

Inventor is Filippo Frangialli, Paris. Patent awarded is number 2,537,453.

Science News Letter, January 27, 1951

ENGINEERING

Insulation Needed For Panel Heating

➤ INSULATION behind and around the edges of heated panels used in floor-type panel heating systems is essential to prevent heavy loss of heat, the American Society of Heating and Ventilating Engineers was told at its meeting in Philadelphia.

Failure to use insulation results in the loss of about 30% of the heat energy applied to the panel, according to F. W. Hutchinson, University of California, and D. L. Mills and L. J. La Tart, Revere Copper and Brass, Inc., Rome, N. Y. This loss is from the rear and the edges of the panel, they stated.

The conclusions of these technical men were based on investigations made during the past two winters in a regularly occupied building with floor-type heating panels in which the heating coils were embedded in concrete slabs.

In separate tests, three-quarter inch sinuous coil copper tube was used, the coil being embedded in a four-inch concrete slab poured over a six-inch gravel fill. Coils were embedded at two different depths. In each case the heated floor section was less than total floor area. However, edge and rear losses of heat were found to agree closely, and amounted to about 30% of the total energy supplied to the heating system.

Science News Letter, January 27, 1951

ENCE FIELDS

PHOTOGRAMMETRY

Picture of Korea From Aerial Photos

➤ AERIAL photography gave a better and more complete analysis of Korea than that made by untrained officers in the field.

And it did so without endangering soldiers' lives by enemy action, Matt Witenstein of the Army Map Service told the American Society of Photogrammetry meeting in Washington.

A specialist in strategic intelligence, Mr. Witenstein said that the U. S. made a complete analysis of the highways, railways, towns and electric power facilities of Korea through interpretation of the aerial photographs.

The landscape shown by aerial photographs gives clues, he stated, from which the engineer can build up information much as a detective reconstructs an individual from his footprints in the snow.

A seemingly simple thing, such as the white line of a highway can help to give information about the road surface, the base on which it is built and its strategic and economic implications. Many sources of information must be interwoven to obtain the required information from aerial photography, he said.

Science News Letter, January 27, 1951

RADIO

Airplane VHF Receivers, Installation Aided

➤ PILOTS of private planes now being equipped with very high frequency radio receivers will be aided by a free leaflet issued recently by the U. S. Civil Aeronautics Administration on the installation of VHF Radio, VHF Omnirange Radio Installation and Noise Reduction Techniques.

The leaflet is a summary report of studies made by CAA technicians with nine makes of personal planes. The objective of the studies is to promote the safer flying that comes with better radio reception. With the present conversion of radio ranges and airport communication systems to very high frequency static-free signals, private planes need new reception equipment.

As a result of the tests already made, CAA officials report that most complete noise suppression in the very high frequency receivers now coming into general use is obtained with a properly maintained, shielded ignition system. Spark plugs are the worst offenders in producing disturbing noises. Use of resistance spark plugs without shielded harness provides an economical but not as good means of reducing ignition noises as the shielded ignition system.

Science News Letter, January 27, 1951

SURGERY

Patients "Monitored" Through Operations

➤ PATIENTS can be "monitored" through surgical operations by a new kind of blood pressure recording device reported by Dr. Robert Dripps of the Hospital of the University of Pennsylvania at the Surgery Section meeting at the U. S. National Institutes of Health.

A plastic catheter, or tube, is used instead of a needle to register changes in blood pressure during the operation. Recording is done by an ink writer instead of by photographic recording. The combination, Dr. Dripps said, gives greater flexibility and a more accurate, immediate view of blood circulation dynamics.

From the new technique, Dr. Dripps hopes also to get answers to such puzzling questions as why the effect of pressure from the anesthetic mask should cause low blood pressure during light anesthesia but does not reduce blood pressure when anesthesia is heavy. Another unanswered question he cited is why blood pressure is raised during examination of the throat by the laryngoscope under light anesthesia but not under heavy drugging.

Science News Letter, January 27, 1951

ENGINEERING

Supplies Are Dropped From Airplane Rapidly

➤ TWENTY 500-pound packages of equipment can be dropped from a military plane within seven seconds and within a 1,500-foot area with the help of a new monorail system revealed in Dayton, Ohio.

This rapid-fire aerial delivery, over 12 times higher than the World War II rate, is the result of a development program at the Wright-Patterson Air Force Base and Ryan Industries, Detroit, Mich. It uses an overhead monorail system that can be installed in large cargo planes.

Bundles to be dropped are suspended on the single rail which runs the length of the plane's fuselage. They are on trolleys that ride the rail on special rollers. The quick-ejection system is operated by a push button.

This opens the cargo doors in the forward section of the fuselage and activates a driving motor. The trolleys unlock individually and release their bundles as they contact the drop point above the cargo doors. A static line on each bundle pulls out the chute with which each is equipped as the package clears the plane.

Science News Letter, January 27, 1951

ASTRONOMY

Streams of Stars Connect Galaxies

➤ GREAT streams of stars reaching between many of the twin spiral galaxies, each as large as our Milky Way, have been discovered by Dr. Edwin F. Carpenter of the University of Arizona's Steward Observatory.

These great star systems containing as many as a hundred billion stars develop these lengthy connections when they come close enough together and perform a cosmic "kiss."

Dr. Carpenter's observations with a 36-inch telescope extending over many years and involving 60 to 70 pairs of galaxies, give new light upon the way in which the galaxies are formed. The great streamers or filaments between them are pulled out by tidal or gravitational forces and the gaseous substances in them collapse and condense into stars.

The new results indicate that great spiral nebulae are moving in such a way that they are wound up like a watch spring instead of disintegrating like a fireworks' pinwheel.

Two galaxies with such a new found connection may be so distant from each other that it takes light 100,000 years to travel from one to the other.

Science News Letter, January 27, 1951

MEDICINE

Flu Test Gives Verdict in Hour

➤ A SIMPLE test which will tell within an hour whether a patient has influenza or whether his sore throat and feverish aches are due to some other cause, such as atypical pneumonia or a bad cold, has been developed by Dr. S. Fazekas de St. Groth of the Walter and Eliza Hall Institute of Medical Research in Melbourne, Australia.

The test is made from material swabbed from the patient's nose which is then soaked in salt solution of a special strength. It depends on the finding that the mucus normally secreted by human noses contains a substance called an inhibitor which stops clumping of red blood cells. During infection with influenza, the nasal mucus loses this ability.

Disappearance of the inhibitor was previously found to be one of the most sensitive diagnostic signs of influenza in mice. Trials during an epidemic of influenza A in humans in Melbourne showed the test compared well with other tests for 'flu infection in humans. It has the advantage of being simple to perform and quick to give the answer. Details are reported by Dr. de St. Groth in the British scientific journal, NATURE (Jan. 6).

Science News Letter, January 27, 1951

ASTRONOMY

Saturn and Venus Shine

Two bright planets now visible in the early evening, one in the west, the other in east. Brightest star in February evening skies is Sirius, the dog-star.

By JAMES STOKLEY

➤ DRAWING still farther east of the Sun, and thereby setting a longer time after sunset, the planet Venus can be seen during February evenings without great difficulty. It descends below the western horizon about an hour and a half after the Sun, so it will be seen in the gathering evening twilight. It is so brilliant, however, (of magnitude minus 3.3 on the astronomical scale) that it can easily be found if one has a clear view toward the west at dusk. In the early evening of Feb. 7 the narrow crescent Moon, about a day and a half old (i.e., after new), passes close by, actually eclipsing it as seen from some parts of the country.

Because Venus sets so early, it does not appear on the accompanying maps, which give the appearance of the skies about 10:00 p.m., your own kind of standard time, at the first of February; an hour earlier at the middle and two hours earlier at the end. However, the planet Saturn is shown, in the opposite direction, toward the east, just as it is rising. It is in the constellation of Virgo, the virgin, and of magnitude 0.8, equal to that of one of the brighter first magnitude stars. When near the horizon, soon after rising, it does not shine as brightly as it will later after it has climbed higher into the sky. This is because of the greater absorption of its light by the atmosphere of the Earth.

Brightest Star

Brightest star seen these evenings is Sirius, the dog-star, in the constellation of Canis Major, the great dog, shown directly south. Its magnitude is minus 1.6, which makes it about a fifth as bright as Venus.

Above Sirius, toward the right, one sees Orion, the warrior, with three conspicuous stars in a row forming his belt. Over these are Betelgeuse and Bellatrix, in the giant's shoulder. Rigel, below, marks one of the knees.

Above Sirius, toward the left, we find Procyon, in Canis Minor, the lesser dog. Still higher we come to Gemini, the twins, with Pollux as the brightest star. Almost at the zenith, for the times of the maps, is Auriga, the charioteer, with first-magnitude Capella. Just below this group, toward the southwest, is Taurus, the bull, in which Aldebaran, marking the animal's eye, is the brightest star.

High in the east is still another constellation with a first-magnitude star. This is Leo, the lion, and Regulus is the star. It is part of a group called the sickle, Regulus marking the end of the handle, which points downwards.

In the northeast is the great dipper, also with the handle downwards, a figure which is really part of Ursa Major, the great Bear. The two top stars in the dipper are the well-known pointers, whose line, followed to the left, brings one to Polaris, the pole-star. This, in turn, is in Ursa Minor, the lesser bear, and it stands almost directly over the north pole of the Earth. On the opposite side of the pole-star from the dipper we find Cassiopeia, shaped like a Greek letter Sigma, or a W on its side.

Jupiter Near Sun

Two other planets besides those mentioned are also in the evening sky, but they are harder to see though they stand near Venus at this time. Jupiter is one of them, and is about the same brightness as Sirius. Unlike Venus, it is drawing closer to the Sun, thus becoming harder to see. Venus and Jupiter pass on Feb. 11, at 10:00 a.m. EST. Mars is also in the same direction, and of the second magnitude, which will make it very difficult to locate. Venus passes Mars, from west to east, on Feb. 15, at 11:00 p.m. EST. Mercury is not visible at all in February, for it is too nearly in the same direction as the Sun.

When, on the evening of Feb. 7, the narrow crescent Moon passes the brilliant planet Venus, it will be a striking effect for those fortunate enough to see it. For those in the western part of the country, by the time the Sun goes down and the planet and crescent may be seen, the closest approach will already have passed, though they will still be close enough to cause comment.

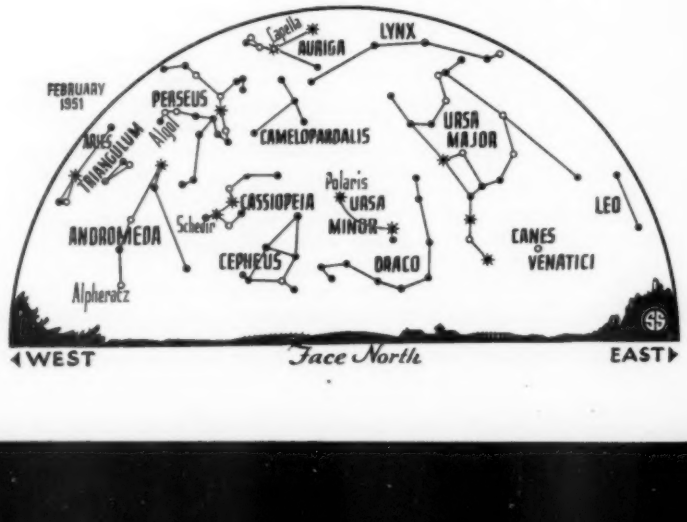
In the northerly and northeastern parts of the country, the Moon will actually pass in front of Venus. Though this a a form of eclipse, that term is generally used for the passage of the Moon in front of the Sun, or of the Moon into the shadow of the Earth. However, the Moon can and often does move in front of a star. More rarely does it hide a planet. Such "eclipses" of stars and planet are called "occultations."

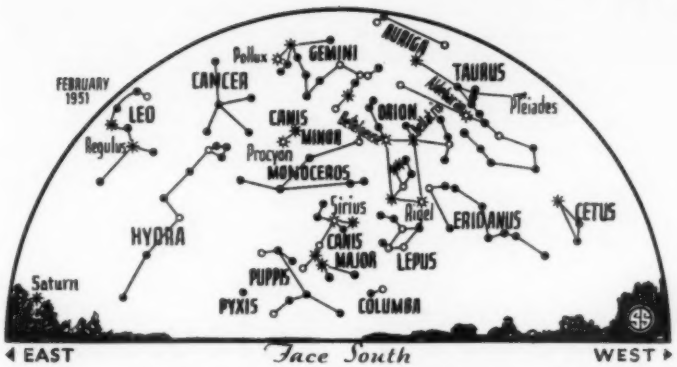
Visible in Massachusetts

On the seventh the line marking the region where the occultation will be seen passes from the vicinity of New York southwesterly across the country. It will not be observed from Washington, but from a point in western Massachusetts the planet goes behind the Moon at about 6:13 p.m., EST, which is shortly after sunset. Here the Moon has set before the planet reappears.

Farther west, in southern Illinois, the disappearance is at 4:49 p.m. CST, before sunset, and the reappearance at 5:36, about the time of sunset. In southern California the whole affair takes place in the afternoon, with the planet hiding at 1:53 p.m. PST, and emerging at 3:20 p.m., so it will not be visible there, except with telescopic aid.

Since the Moon is moving from west to east when it overtakes Venus, and since the bright edge of the Moon is toward the Sun, or toward the west, the planet is hidden by the Moon's dark edge. When such an occultation of a star or planet occurs, the occulted body is seen clearly right up to the lunar edge. This is taken as good proof that the Moon has practically no atmosphere. If it did, the occulted body would gradually be dimmed as it approached the lunar edge, because its light would then be absorbed





☼ ✱ ○ ● SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

by passage through a greater thickness of the layer of air.

There may, however, be a very slight atmosphere on the Moon, comparable with that 50 miles or more above the surface of the Earth, which is estimated to be about a twenty-thousandth as dense as the air at sea level. Such a concentration would be a fair vacuum.

One piece of evidence in favor of this is the fact that in all the vast number of hours that astronomers have spent observing the Moon through their telescopes, they have never seen a meteorite hit its surface. Such a collision, especially as it hit the dark side of the Moon, should make a flash that would be easily visible through a telescope. With the number of meteorites that reach the Earth—millions each day—it seems that the nearby Moon would be similarly bombarded. If they do not hit the surface something must stop them.

We know what keeps most of them from hitting the Earth's surface. It is the atmosphere, which causes such friction that they burn up in the flash of light we call a "shooting star," or "meteor." As a result, all but a very minute proportion are consumed while still 50 miles or more above the ground. Thus, it seems possible that the Moon might have an atmosphere comparable with that of the Earth's at such an altitude. It would still stop most of the meteorites, but would be thin enough that it would not cause appreciable absorption of a star's light as it was occulted.

* * *

Celestial Time Table for February

Feb.	EST	
3	10:00 a. m.	Moon nearest, distance 226,700 miles
6	2:54 a. m.	New moon
7	2:00 p. m.	Moon passes Jupiter
	5:11 p. m.	Moon passes Venus
8	12:07 a. m.	Moon passes Jupiter
	12:34 a. m.	Moon passes Mars
	1:00 a. m.	Planet Pluto nearest, distance 3,253,700,000 miles
	1:10 a. m.	Algol (variable star in Perseus) at minimum
10	9:59 p. m.	Algol at minimum
11	10:00 a. m.	Venus passes Jupiter
13	2:55 p. m.	Moon in first quarter
	6:49 p. m.	Algol at minimum
15	5:00 a. m.	Moon farthest, distance 251,400 miles
	11:00 p. m.	Venus passes Mars
21	4:12 p. m.	Full moon
23	10:19 p. m.	Moon passes Saturn
28	5:59 p. m.	Moon in last quarter

Subtract one hour for CST, two hours for MST, and three for PST.

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INVENTION

Bag Shrinks To Fit

➤ A BAG for packaging and preserving perishable foodstuffs, that can be shrunk to fit the food closely after being applied, brought patent 2,538,025 to Garnett V. Moore and Carroll R. Irons, Midland, Mich. The patent has been assigned to The Dow Chemical Company of the same city.

This flexible bag is made of about 73% vinylidene chloride and 27% vinyl chloride. After the food, such as meat, fresh fruit and vegetables, is put in the bag air is evacuated and the opening sealed with a hot iron or otherwise. Then bag and contents are submerged in water close to but not up to the boiling point. The bag shrinks tightly about its contents.

Preserving bags made of this material are claimed to be superior to similar bags of other materials in that they have no tendency to shrink at any temperature encountered in shipping. At temperatures between 85 and 100 degrees Centigrade, however, they will shrink from 30% to 50%. They are clear and transparent. They are capable of being stored for prolonged periods at freezing temperature without becoming brittle.

Science News Letter, January 27, 1951

BOTANY

NATURE RAMBLINGS

Oleander

➤ A FINE plant for winter blooming, better known to our grandmothers than to ourselves because they had real houses to live in instead of apartments, is the oleander. Its disadvantage for present-day house culture lies in its ambition, for it likes to grow up into a little tree rather than remain as a small, compact shrub, and that requires a good deal of room. But anyone who can spare the space for an oleander tub will be well rewarded with gorgeous masses of pink or white bloom.

The reason for the oleander's success in indoor culture lies in the paradoxical fact that it is at once a swamp plant and a desert plant. That is the situation most houseplants find themselves up against. Solicitous owners are apt to over-water them, and at the same time their tops are exposed to air that is like that of a desert in its dryness.

The oleander has been growing for ages in just such a habitat in its widespread native home in Mediterranean and Oriental regions. Its generic name, *Nerium*, comes from a Greek word meaning moisture, for in the wild it grows in wet soil. But at the same time its leaves are exposed to the hot sun and the drying winds of the warmer Levant. It is like a palm tree in this: its roots in a swamp and its top in the desert.

The stiff, tough, dark-green leaves are at once reminiscent of desert vegetation. They exude a milky juice when punctured. This juice is marked by its poisonous properties. It is reported that in the course of the Peninsular War some French soldiers died from roasting their meat on skewers made of freshly-cut twigs of oleander.

The Roman naturalist, Pliny, mentions its rose-like flowers and poisonous qualities, at the same time stating that it was considered serviceable as a remedy against snake-bite.

There are two species of oleander, very much alike in general appearance, but distinguishable by the fact that one has scented flowers, while the flowers of the other are odorless. Both varieties, however, exude the milky substance that is poisonous for both humans and animals if eaten.

Science News Letter, January 27, 1951

RADIO

FM Used for Telegrams

➤ FREQUENCY MODULATION, familiar as FM to radio fans, is in successful operation on the huge trunk-line and tributary network of the Western Union Telegraph Company, the American Institute of Electrical Engineers was told at its meeting in New York.

Nearly 2,000,000 miles of circuits linking the principal cities of the nation are involved, according to Western Union engineers, F. B. Bramhall and L. A. Smith. The circuits, embodying automatic switching and virtually doing away with manually handled telegrams, except in small towns, has speeded up transmission of messages, reduced time lost because of system trouble, and reduced maintenance, they said.

Western Union made limited FM field installations on an experimental basis during 1930-40, but in 1946 began a wholesale conversion to this system, they stated. "Installation, operation and maintenance have been economical, and the continuity of service obtained has improved to a marked degree."

Studies in heating, ventilating, air-conditioning and refrigeration will be aided by two new instruments for measuring radiation on the earth's surface described to the meeting by J. T. Geir and R. V. Dunkle, University of California at Berkeley. The development was made possible through a thermal radiation project sponsored by the U. S. Office of Naval Research.

One is a flat plane radiometer, the other a total hemispherical radiometer. The devices have been developed primarily to measure the total irradiation, atmospheric plus solar, and can be used for both day and night measurements. They will serve a useful purpose in studying evaporation, the problems of freezing of crops, and snow melting rates.

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ENGINEERING

River Sounded from Air

➤ A SURVEY of the river bed from the crest of Niagara Falls upstream a mile to Goat Island has at last been made, thanks to a hovering helicopter. All earlier attempts by engineers to make general soundings in the river have been foiled by rush of the perilous waters.

This survey of the Niagara River bed above the falls was undertaken as a result of the treaty signed with Canada in October of the past year. The survey will help to determine the amount of water that can be diverted to provide electric power without affecting the beauty and grandeur of the falls. The water diverted will be divided between the two countries on a 50-50 basis.

The survey was made by U. S. Army Corps of Engineers with the aid of a specially equipped helicopter leased from Bell Aircraft Corporation. It is the ability of the helicopter to hover, that is, remain almost stationary in the air, that made its successful use possible. From it, hovering 1,000 or more feet above the river at stations 300 feet apart, soundings were taken with a lead-weighted steel line.

Readings of the steel line were taken by four surveying parties with instruments stationed at different points on the shore. Two-way radio connected the aircraft with the ground crews. The area charted is about a square mile in extent. A total of 252 soundings were made. As many as 77 were made in a single day. Soundings of the river above Goat Island as far as Lake Erie were made by normal methods.

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The America *opossum* is the only mammal in this country that raises its young in a pouch similar to that of the kangaroo of Australia.

A lot of insect trouble next summer can be prevented by *spraying* now to kill the insect eggs.

Young *crocodiles* in captivity in zoological gardens have big appetites; a problem in rearing them is to keep them from overeating.

MEDICINE

Influenza as Usual

You cannot depend on vaccines to protect you from infection. But antibiotics will save your life if you have complications.

➤ INFLUENZA situation as usual. Vaccines cannot be relied on for protection. Antibiotic drugs like penicillin will save your life if complicating infections threaten.

That, in brief, is the opinion of leading influenza authorities who gathered at the U. S. National Institutes of Health for the regular meeting of the advisory committee for the United States of the World Health Organization's influenza study program. Included in the group were the Surgeons General of the U. S. Public Health Service, Army, Navy and Air Force. Following the meeting, the Surgeon General of the Public Health Service sent telegrams to all state health officers advising them that:

1. Local epidemics of influenza occur every year at this season in the U. S. Only rarely do they spread widely and none is like the great 1918 pandemic.

2. An extensive influenza epidemic now exists in England, but it is mild, is not like the 1918 one, and does not mean we will necessarily have a widespread epidemic in the U. S. this year.

3. There is no vaccine against influenza that "we can expect will protect with certainty." The situation calls for continued controlled studies in the hope of producing an efficient vaccine.

4. It is expected that some influenza will appear in the U. S. this year. It will be of the sort we have been having in recent years.

5. "It is recommended that for patients with a severe, influenza-like illness, appropriate antibiotics be used." This is because most deaths during a 'flu epidemic are due to complications from other germs than the 'flu virus, for example, pneumonia. These can in most cases be cured by antibiotics.

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MEDICINE

Imitation Aids Diagnosis

Hobby of physician is to imitate the gestures, postures and facial expressions of patients and then figure out what would produce them.

➤ IMITATING patients is a good way to find out what's wrong with them, according to Dr. C. M. Cooper.

Dr. Cooper, retired professor of clinical medicine at Stanford University, tells how he discovered a man's kidney stones by imitating the posture the patient took to relieve his pain, how he gained clues to other illnesses by imitating patients' expressions, gait and idiosyncrasies.

Of the man with the kidney stones, who suspected he had gallstones, Dr. Cooper says:

"I asked him to show me the relieving position. He got down on his hands and knees and inclined his body. I did the same, imitating his every movement. The posture I had assumed seemed more calculated to afford some relief in pains of kidney than in those of gallbladder origin."

Later checks with X-ray proved Dr. Cooper was right.

Dr. Cooper began evolving this novel method of diagnosis early in his career after he had been told he was a poor clinical observer. He began dividing up a patient's face into sections, examining each section individually, so as not to miss anything.

He began to catch expressions on the faces of the patients which had formerly eluded him. If he could not figure out what they meant, he would imitate them before a mirror.

"Then I would realize what inner feeling in me would have called forth such an expression, and therefore the inner feeling that in all probability had induced it in the individual who had exhibited it," Dr. Cooper explains.

From that, it was but a step to imitating the tone, placement and tempo of speaking voices. He also imitated the change in figure, posture and gait and the idiosyncrasies and behavior reactions of his patients.

"In due time," Dr. Cooper says, "induced by revealing experiences with patients, I extended these activities into the imaginative or experimental fields. Thus I would imagine I had a particular symptom or ailment that puzzled me, and then see if I could uncover anything in my past that might cast light upon it; or that I had a patient's crippling impairment for which he had not been able to evolve a helpful compensatory adjustment; and then try through self experimentation to unearth one for him."

Dr. Cooper wrote of what he calls his "diverting, medically useful, life hobby," in CALIFORNIA MEDICINE (Jan.).

Science News Letter, January 27, 1951

GENERAL SCIENCE

Chances for 30,000 To Study Abroad

➤ MORE than 30,000 students and professors of various nations are able to study abroad under the world-wide general interchange of study opportunities, listed in the latest survey report by UNESCO.

Over 12,750 of the study opportunities are related to the United States with one-third providing for U. S. citizens to travel abroad and the rest bringing people to the United States to study. About 1,600 of these are granted by colleges and universities, over 2,250 by educational foundations and private organizations and the rest through government grants.

Science News Letter, January 27, 1951

VETERINARY MEDICINE

Du Pont Laboratory To Aid Animals

➤ BETTER MEDICINES and food for animals are expected to result from the new $2,700,000 laboratory farm announced by Du Pont for completion next year near Newark, Del. Work of the new research installation named for Dr. Charles M. A. Stine, Du Pont chemist now retired, will apply new synthetics to control of bacterial and virus diseases, parasites and insects. Animal nutrition will also be studied.

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Farm output per man-hour is double what it was 40 years ago.

The present main uses of industrial *molasses* are in alcohol making and cattle feed.

All American *silver fox* furs are obtained from animals raised in captivity.

• Books of the Week •

TO SERVE YOU: To get books, send us a check or money order to cover retail price. Address Book Dept., SCIENCE NEWSLETTER, 1719 N St., N. W., Washington 6, D. C. Ask for free publication direct from issuing organizations.

ADVERTISING PSYCHOLOGY AND RESEARCH: An Introductory Book—Darrell Blaine Lucas and Steuart Henderson Britt—*McGraw-Hill*, 765 p., illus., $6.50. An advanced college text combining the psychological principles of advertising with applications of practical research methods.

CATALOG OF MENTAL HEALTH PAMPHLETS AND REPRINTS AVAILABLE FOR DISTRIBUTION 1950—National Institute of Mental Health—*Gov't. Printing Office*, 55 p., paper, 20 cents. An annotated bibliography of pamphlets and reprints by title arranged by subject.

ELEMENTS OF BACTERIAL CYTOLOGY—Georges Knaysi—*Comstock*, 2nd ed., 375 p., illus., $5.00. A text on the cells of the bacteria.

HEALTH PROGRESS IN THE UNITED STATES: A Survey of Recent Trends in Longevity—Mortimer Speigelman—*American Enterprise Association*, 28 p., illus., paper, 50 cents. One of the National Economic Problems Series.

THE HEBREW IMPACT ON WESTERN CIVILIZATION—Dagobert D. Runes, Ed.—*Philosophical Library*, 922 p., $10.00. Contributions on the creative and cultural influence of the Jew in the major fields of modern civilization such as L. L. Bernard's Jewish Sociologists and Political Scientists, A. A. Roback's The Jew in Modern Science and Solomon R. Kagan's The Influence of the Jew on Modern Medicine. The editor is a Doctor of Philosophy of the University of Vienna.

INDUSTRIAL RESEARCH LABORATORIES OF THE UNITED STATES: Including Consulting Research Laboratories—Myron J. Rand, Compiler—*National Research Council*, 9th ed., 444 p., $5.00. A standard reference brought up-to-date.

LITERARY PROPERTY IN THE UNITED STATES—Ralph R. Shaw—*Scarecrow Press*, 277 p., $6.00. Discusses what literary property is, what it is intended to protect; why, how and for whom.

THE LOW FAT, LOW CHOLESTEROL DIET: What to Eat and How to Prepare it—E. Virginia Dobbin and others—*Doubleday*, 371 p., $3.45. A cookbook designed to aid in preparing meals for people with hardening of the arteries.

MATHEMATICAL BIOLOGY OF SOCIAL BEHAVIOR—Nicolas Rashevsky—*The University of Chicago Press*, 256 p., illus., $5.00. In this book, the author interprets the postulates he made in an earlier book, Mathematical Theory of Human Relations. The behavior of an individual in a social group and the behavior of the group as a whole are interpreted in mathematical terms.

MATHEMATICS: Queen and Servant of Science—E. T. Bell—*McGraw-Hill*, 437 p., illus., $5.00. A brief history of pure and applied mathematics from the geometry of Euclid to the most recent developments in mathematical physics.

MILLING AND BAKING EXPERIMENTS WITH WHEAT VARIETIES GROWN IN WESTERN UNITED STATES, 1936-45—C. C. Fifield and others—*Gov't. Printing Office*, U. S. Dept. of Ag. Tech. Bull. No. 1014, 35 p., illus., paper, 15 cents.

NAME THAT ANIMAL: A Guide to the Identification of the Common Land and Fresh-water Animals of the United States, with special reference to the area east of the Rockies—*Ernest C. Driver*, 2nd ed., 558 p., illus., $6.50. A zoological key of the animals from the protozoa to the mammals.

THE OBSERVER'S HANDBOOK FOR 1951—C. A. Chant, Ed.—*The Royal Astronomical Society of Canada*, 43rd issue, 80 p., illus., paper, 40 cents. Much helpful information to aid in observing the skies.

ORCHARD INSECTS OF THE PACIFIC NORTHWEST AND THEIR CONTROL—E. J. Newcomer—*Gov't. Printing Office*, U. S. Dept. of Ag. Circ. No. 270, 63 p., illus., paper, 25 cents.

THE PLANT DOCTOR: The How, Why and When of Disease and Insect Control in Your Garden—Cynthia Westcott—*Lippincott*, 3rd ed., 231 p., illus., $3.00. Tells what can be done each month in the northeast section of the United States with problems of other regions briefly discussed.

A REPORT ON THE EXCAVATION OF A SMALL RUIN NEAR POINT OF PINES, EAST CENTRAL ARIZONA—Fred Wendorf—*University of Arizona*, 150 p., illus., paper, $2.00 An archaeological study made in the Southwest.

WE OF NAGASAKI: The Story of Survivors in An Atomic Wasteland—Takashi Nagai—*Duell*, 189 p., $2.75. The dramatic personal accounts of eight survivors of the A-bomb including five adults and three children. A professor at the Nagasaki Medical College collected the accounts. Translated from the Japanese by Ichiro Shirato and Herbert B. L. Silverman.

YOUR NEW SOCIAL SECURITY—47 QUESTIONS AND ANSWERS: Old-Age and Survivors Insurance—Social Security Administration—*Gov't. Printing Office*, 29 p., illus., paper, five cents.

Science News Letter, January 27, 1951

Argentina is planning three new mills to produce *newsprint;* one will be in a sugar area and will make paper from bagasse, the waste from sugar cane.

On This Week's Cover

➤ THE NOISE problem at the Supersonic Tunnel of NACA's Lewis Flight Propulsion Laboratory, in Cleveland, Ohio, has been solved by an acoustical house addition. Helmholtz Resonators help to quiet frequencies from five to 11 cycles. Fiber glass panels in passages are used for sound treatment of frequencies from 20 cycles up.

The photograph on the front cover of this week's SCIENCE NEWS LETTER shows the interior of the acoustical house.

Science News Letter, January 27, 1951

CHEMISTRY

Italian Perennial Cane Makes Rayon Cellulose

➤ A DOMESTIC cane whose stalks have long been used in Italy as stakes in vineyards is now being used to produce a high-grade rayon cellulose, the American Society of Mechanical Engineers was told by Frank Perutz of New York.

Mr. Perutz is resident engineer in the New York office of Snia Viscosa, an Italian firm that produces 90% of that country's viscose rayon. The discovery that this cane, technically Arundo Donax, can be used for this purpose relieves Italy of the need of importing northern fir and spruce, largely from Norway and Sweden.

This cane is a perennial plant that reproduces each year from shoots. It is capable of providing an annual output greater than any conifers, Mr. Perutz said. It is being grown in a marshy swampland in northern Italy so its cultivation does not use land suitable for farm crops. Some 44,000 tons a year of rayon cellulose is now being produced from it.

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Intercity *motorbuses* now carry more passengers a year than the railroads.

Much *aluminum* is now used in making all sorts of equipment for war purposes because lightweight is essential for air transportation.

Arctic natives, because of their isolation, are often relatively free from some of the wide-spread infectious diseases such as influenza, measles and the common cold.

Spanish moss is attached to trees but is not a parasite; it takes its food from the air.

The *emperor goose* of Alaska is one of the most handsome and least known of American geese.

Potato yield, in Maine's potato country, has increased about 75% per acre in the past 20 years because of better varieties, heavier fertilization and more effective spraying.

• New Machines and Gadgets •

For addresses where you can get more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N ST., Washington 6, D. C. and ask for Gadget Bulletin 554. To receive this Gadget Bulletin without special request each week, remit $1.50 for one year's subscription.

⚙ *DISSECTING NEEDLE, electrically-driven, for operating on the nervous system of a chick embryo, will be used to separate the hind-brain of the embryo and prevent the development of nerve cells in the heart walls. Purpose is to determine whether certain drugs affect the nervous system or the muscle tissues of the heart.*

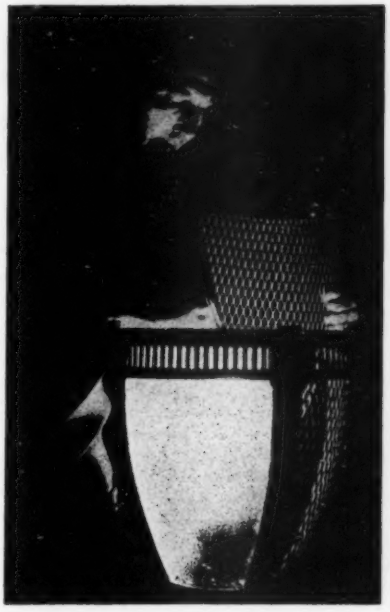
Science News Letter, January 27, 1951

⚙ *DUST-PROOF SOCKETS for automobile tail lights, also moisture-proof, are coated after parts are assembled by dipping in a vinyl plasticol. The protection is applied economically by this process. After dipping, the coating is cured in a fusion oven heated by infrared lamps.*

Science News Letter, January 27, 1951

⚙ *SUN LAMP that resembles a fluorescent tube, particularly for use in hen houses to increase egg production in the short-day season, gives ultraviolet radiation claimed to speed the growth of broilers. It is an economical light, using less electricity than a 25-watt bulb.*

Science News Letter, January 27, 1951



⚙ *METAL GUARDS for street lamps, shown in picture, are made of sheet metal with diamond-shaped openings cut out to give a network effect. The guards, to prevent breakage by vandals, are made from what is called expanded metal, a strong material made by piercing and stretching solid sheet steel.*

Science News Letter, January 27, 1951

⚙ *DIAL-FACE THERMOMETER, for outside a window, is easily read because light through the transparent back illuminates the red pointer and figures on the glass front. The device has two small pointers to indicate hot and cold extremes during any desired period.*

Science News Letter, January 27, 1951

⚙ *STAINLESS STEEL beakers for laboratory use, highly polished to a mirror finish, have permanently attached bakelite handles for easy handling without the need of beaker tongs. They have heavy beaded rims and dripless pour-out lips.*

Science News Letter, January 27, 1951

⚙ *PRESSURE COOKING is accomplished without watching and worry by a device that includes three appliances in one. They are a heat-controlled electric stove, a full 60-minute electric timer and a four-quart pressure sauce pan. The assembly is completely automatic and cooks at either 10 or 15 pounds pressure.*

Science News Letter, January 27, 1951

⚙ *SAFETY RAZOR with a magnetic guard, for which the government issued a recent patent, is claimed to give easy shaves and extra shaves per blade. A permanent magnetic rod is fixed on the blade holder close to the cutting edge and exerts an inward pull on the feathered portions of the blade.*

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Do You Know?

Robins like *cherries* and take a heavy toll if trees are not protected.

America imports two-thirds the *tannin* used in making domestic leather.

Norway hopes to find a market for its prefabricated *houses* in India and Australia.

A variety of *tree* types and a range of tree ages is important for wildlife.

Concentrated *milk* is now being produced which has the taste and nutritive value of regular milk.

Fuel gas is being produced experimentally from trimmings, cores and other fruit wastes in pear-canning factories.

Straw from wheat, rice, oats, barley, rye and flax can all be used in paper-making to conserve wood pulp.

Soybeans grown in southern American states contain more oil than those grown in the north.

In Oregon, where much milk is raised and filbert nuts are a surplus crop, a *cheese* is proposed which would combine the two in making a product of excellent flavor.

Arabia produces only 20% of its own *food*.

Brant are a small type of goose about the size of a mallard duck.

The *web* of the spider is stronger than steel for its weight, scientists say.

Synthetic *spearmint oil* for flavoring can be made from orange and grapefruit peels.

Only about one-half the United States has been topographically *mapped*.

The young of the *condor* takes so long in developing that it is fed and cared for by its parents until a year old.

Waste in lumber manufacturing is very high; the most successful use of wood waste at the present time is in the making of composition *wallboard*.

Some freight cars of the railroad *box-car* type are being made of plywood, electronically bonded with special plastic, instead of the ordinarily used steel.

● RADIO

Saturday, February 3, 1951, 3:15-3.30 p.m. EST.
"Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. Harold W. Oppice, president of the American Dental Association and Professor of Crown and Bridge, Loyola University, will discuss "Better Dental Health for Our Children."

You Can Have "Spring in February" With These Exciting Plant Experiments

SOILLESS GARDENING EXPERIMENTAL KIT

With this garden-in-a-box you can have a little "farm" of the most modern sort. And you can have it at any time of the year, regardless of weather.

This kit has been assembled for you so that you can experiment in a practical way with some of the latest developments in soilless gardening, hydroponics, or tray agriculture, as it is variously called.

You will have fun raising the plants and doing the suggested botanical experiments. That is the reason that the kit is called: Science FUNdamentals.

Anyone can learn about growing things and some of the principles of agricultural science by experimenting with this kit. The plants you raise will not lower the high cost of living but they will increase the pleasure of learning. Send for this kit today so you can get started on soilless gardening as a hobby.

Young and old alike will enjoy this complete outfit for hydroponics. There is nothing else to buy. It contains everything needed to start growing fruits and flowers. Pots are easily assembled, chemicals to feed growing plants, shiny mica material for roots to cling to, seven kinds of specially selected seeds. Grow seedless fruit, sprout roots on stems, experiment with colorful plastic tents for light-growth.

CONTENTS OF KIT

One dozen Green Pots
(that you can assemble)

Cellophane sheets
(of various colors - to be used in light and growth experiments)

Chemicals Your Plants Will Need
- 3 vials - Potassium acid phosphate
- 2 vials - Magnesium sulfate
- 1 vial - Calcium nitrate
- 1 vial - Ferrous sulfate

Seven Kinds of Interesting Seeds

Russian sunflower	Dwarf nasturtium
Earliana tomato	Okra
Globe radish	Soya bean

Ornamental gourds

Box of Vermiculite
(shiny stuff that serves as soil but isn't really)

Plant Breeding Material
- 1 vial - Hormodin
- 1 vial - Seedless Fruit Hormone

Instruction Book

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